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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/689,738	10/13/2000	Anil K. Agarwal	A7451	6027

7590 04/01/2004

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Washington, DC 20037-3213

EXAMINER

LEE, CHI HO A

ART UNIT	PAPER NUMBER
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2663

DATE MAILED: 04/01/2004

15

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/689,738

Applicant(s)

AGARWAL ET AL.

Examiner

Andrew Lee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1- are rejected under 35 U.S.C. 103(a) as being unpatentable over Maher et al U.S. Patent Number 6,647,020.

Re Claims 1 and 14, fig. 1 teaches plurality of terminals 148, 150, 152, 154, 156 (one of terminal is a master terminal: applicant should note that the master terminal has no apparent function in the body of the claim) each associated with a particular site and local routers 108 & 110 supporting IP multicast services; further teaches Zone controller 116 (a route server) in communication with plurality of local routers for establishing IP multicast and maintaining and dynamically assigning multicast control addresses to control message transmission between participating multicast group (See col. 8, lines 28-60). In particular, upon multicast request from a mobile terminal, the zone controller 116 returns "Call Grant Message" to the base site 102 (a controller) or any other participating sites (See Col. 9, lines 1-16), further teaches the base site can operate in TDMA slots (See col. 4, lines 20-48) for allocating broadcast bursts to the mobile terminals. Maher et al fails to explicitly teach the network 100 of fig. 1 to include meshed satellites in TDMA. However, one skilled in the art would have been motivated to incorporate the meshed satellite connection into the network of fig. 1 to expanded

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coverage. Hence, by incorporate the network 100 of fig. 1 with satellite gateway, IP multicast service can be expanded to distant locations serviced by the satellites.

Re Claim 2, refer to Claim 1, wherein the base site inherently allocates burst through at least one slot in TDMA frame initiated by the mobile terminal and granted by the zone controller (router server).

Re Claim 3, refer to Claim 1, wherein upon establishment and initiation of the IP multicast service by the Zone controller 116, it is the mobile terminal to maintain or leave the IP multicast session.

Re Claim 4, refer to Claim 2, wherein the mobile terminal uses the control channel/slot to request IP multicast service to the base site that relay the request to the Zone controller 116. Upon a grant message from the Zone controller to all participating base sites, each base site broadcasts the grant message on it control slot whereby the mobile terminal listens to the broadcast bursts.

Re Claim 5, refer to Claim 4, Maher fails to explicitly teach the BTP generation algorithm. However, Applicant admits that this is a known algorithm. Hence, one skilled in the art would have been motivated to use a known BTP algorithm into the burst allocation at the base site for ease of implementation.

Re Claim 6, refer to Claim 2, wherein the connection between the base site and mobile terminal supports broadcast transmission.

Re Claims 7, 8, refer to Claim 2, when base sites are operating in TDMA frames, each base site inherently is limited by a maximum multicast capacity, i.e., number of assignable time slots configurable by the network operator. One skilled in the art would

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have been motivated to dynamically allocate the broadcast burst according to the user demand for bandwidth efficiency. Hence, by monitoring the demands (volume of traffic) of each mobile user in the local site, the base site can efficiently allocate unused resources to improve throughput.

Re Claim 9, refer to Claim 1, wherein when the mobile terminal requests for an IP multicast session, the request inherently includes its mobile ID to be transmitted to the Zone controller (exchanging routing information).

Re Claim 10, refer to Claim 1, once the zone controller identifies a multicast control address (routing information), the message is transmitted to the mobile terminal via the base site.

Re Claim 11, fig. 1 supports both MVMRP and PIM-SM multicast routing protocols (See col. 6, lines 24-50).

Re Claim 15, refer to Claim 1, wherein the Zone controller 116 manages payload transmission of the IP multicast session (transmitting IP multicast packets from a source to said route server); Zone controller 116, upon multicast request, assigns and transmits multicast control addresses to requesting mobile terminal (forwarding routing information to said terminal); base site associated with the mobile terminal broadcasts IP multicast packets received from Zone controller (broadcasting) in TDMA slots; Zone controller 116 receives IP multicast requests and dynamically assigns multicast addresses call to call basis (refining a receiving set of said terminals) and updating its table based on the JOIN messages (prune message) to the requesting terminals.

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Re Claim 16, upon receiving a Grant message from the Zone controller 116, the mobile terminal transmits and instructs the local routers; afterworth the local routers transmits PIM-SM "join" messages to the core router (a rendezvous point) and then to the Zone controller (See col. 7, lines 12-30); since the zone controller dynamically assigns addresses, the table within the zone controller is constantly updated on call to call basis (updating said routing information in router server) wherein the core router provide distribution of control and data messages (multicasting IP packets) to the local routers and associated mobile terminals wherein unicasting is formed between the Zone controller and the core router.

Allowable Subject Matter

3. The indicated allowability of claims 15-16 are withdrawn in view of the newly discovered reference(s) to Maher et al U.S. Patent Number 6,647,020. Rejections based on the newly cited reference(s) above.

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

U.S. Patent Number 6539003 teaches BTP for satellite TDMA systems.

U.S. Patent Number 6539000 teaches master terminal for detecting failure in a multicast group.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Lee whose telephone number is 703-305-1500. The examiner can normally be reached on Monday to Friday from 8:30AM to 6:00PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chau Nguyen can be reached on 703-308-5340. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ANDY LEE
PATENT EXAMINER
AI
3/28/04

